



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/694,844

10/29/2003

Raphael Duval

PET-1802 D2

2492

23599 7590 10/03/2008  
MILLEN, WHITE, ZELANO & BRANIGAN, P.C.  
2200 CLARENDON BLVD.  
SUITE 1400  
ARLINGTON, VA 22201

EXAMINER

HENRY, MICHAEL C

ART UNIT

PAPER NUMBER

1623

MAIL DATE

DELIVERY MODE

10/03/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/694,844	<b>Applicant(s)</b> DUVAL, RAPHAEL	
	<b>Examiner</b> MICHAEL C. HENRY	<b>Art Unit</b> 1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 1,6-12 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-5,13,15,16 and 19-22 is/are rejected.
- 7) ☐ Claim(s) 17,18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

The following office action is a responsive to the Amendment filed, 06/19/08.

The amendment filed 06/19/08 affects the application, 10/694844 as follows:

1. Claims 2 and 13 have been amended. New Claims 20-22 have been added.

Claims 1, 6-12 and 14 are withdrawn. Applicant's amendments have overcome the rejections made under 35 U.S.C. 103(a). However, a new ground(s) rejection set forth herein.

2. The responsive to applicants' arguments is contained herein below.

Claims 1-22 are pending in the application

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 recites the phrase and "Si a silicon atom". However, this phrase renders the claim indefinite since Si is not represented in any formula or structure in the claim.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

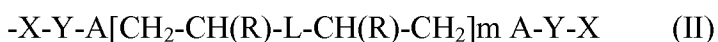
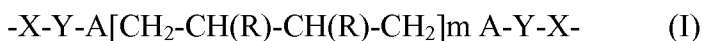
A person shall be entitled to a patent unless –

Art Unit: 1623

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2, 13, 15, 16, 20 are rejected under 35 U.S.C. 102(b) as anticipated by Patel et al. (Melliand Textilberichte (1923-1969) (1968), 49 (1), 85-91).

In claim 2, applicant claims a support material consisting essentially of a cross-linked polymer compound in a three-dimensional network, comprising a radical of general formula (I) or (II):



where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a -NH-CO-group, -NH-CS group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-thioether radical, of general formula (IIIa), bis-sulphoxide radical of general formula (IIIb), or bis-sulphone radical, of general formula (IIIc), or a bis-silane radical of general formula (IV), below:  $-S-W_1-W_2-W_3-S-$  (IIIa) .....

Patel et al. disclose applicant's cross-linked cellulose polymer compound or composition comprising a radical of general formula (II) (see abstract). Patel et al.'s radical is the same as applicant's radical of general formula (II) wherein X represents NH, m is an integer = 1, L represents a bis-thioether radical, of general formula (IIIa) wherein  $W_1$  and  $W_3$  each represent an alkylene radical,  $W_2$  represents a single bond, Y represents -CO- and A represents a single bond

Art Unit: 1623

(see abstract). It should be noted that Patel et al.'s compound or composition is the same as applicant's and should inherently have the same properties or effect of being a support material. Also, it should be noted that it is well settled that "intended use" of a composition or product, e.g., support material, does not further limit claims drawn to a composition or product. See, e.g., *Ex parte Marsham*, 2 USPQ2d 1647 (1987) and *In re Hack* 114, USPQ 161.

Claim 13 is drawn to a percolation membrane comprising a cross-linked polymer compound in a three-dimensional network, comprising a radical of general formula (I) or (II). Patel et al. disclose applicant's cross-linked cellulose polymer compound or composition comprising a radical of general formula (II) (see abstract). Patel et al.'s radical is the same as applicant's radical of general formula (II) wherein X represents NH, m is an integer = 1, L represents a bis-thioether radical, of general formula (IIa) wherein W<sub>1</sub> and W<sub>3</sub> each represent an alkylene radical, W<sub>2</sub> represents a single bond, Y represents –CO– and A represents a single bond (see abstract). It should be noted that Patel et al.'s compound or composition is the same as applicant's and should inherently have the same properties or effect of being a percolation membrane. Also, it should be noted that it is well settled that "intended use" of a composition or product, e.g., percolation membrane, does not further limit claims drawn to a composition or product. See, e.g., *Ex parte Marsham*, 2 USPQ2d 1647 (1987) and *In re Hack* 114, USPQ 161.

In claim 15, applicant disclose a support material according to claim 2, wherein the radical of general formulae (I) or (II) is bound to at least one osidic chiral unit of a linear, branched or cyclic linkage of a polysaccharide or oligosaccharide derivative according to the general formulae (VII) and (VIII): ..... Patel et al. disclose applicant's cross-linked cellulose polymer compound or composition comprising a radical of general formula (II)

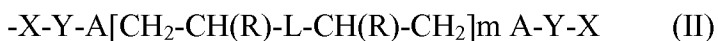
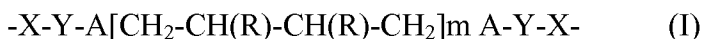
Art Unit: 1623

wherein the radical of general formulae (I) or (II) is bound to osidic chiral units of the polysaccharide cellulose according to the general formulae (VII) and (VIII): (see abstract). Patel et al.'s radical is the same as applicant's radical of general formula (II) wherein X represents NH, m is an integer = 1, L represents a bis-thioether radical, of general formula (IIIa) wherein W<sub>1</sub> and W<sub>3</sub> each represent an alkylene radical, W<sub>2</sub> represents a single bond, Y represents –CO- and A represents a single bond (see abstract). It should be noted that Patel et al's compound or composition is the same as applicant's and should inherently have the same properties or effect of being a support material. Also, it should be noted that it is well settled that "intended use" of a composition or product, e.g., support material, does not further limit claims drawn to a composition or product. See, e.g., *Ex parte Marsham*, 2 USPQ2d 1647 (1987) and *In re Hack* 114, USPQ 161.

Claim 16 is drawn to a support material according to claim 2, wherein L corresponds to formula (IIIa). Patel et al. disclose applicant's cross-linked cellulose polymer compound or composition comprising a radical of general formula (II) (see abstract). Patel et al.'s radical is the same as applicant's radical of general formula (II) wherein X represents NH, m is an integer = 1, L represents a bis-thioether radical, of general formula (IIIa) wherein W<sub>1</sub> and W<sub>3</sub> each represent an alkylene radical, W<sub>2</sub> represents a single bond, Y represents –CO- and A represents a single bond (see abstract). It should be noted that Patel et al's compound or composition is the same as applicant's and should inherently have the same properties or effect of being a support material. Also, it should be noted that it is well settled that "intended use" of a composition or product, e.g., support material, does not further limit claims drawn to a composition or product. See, e.g., *Ex parte Marsham*, 2 USPQ2d 1647 (1987) and *In re Hack* 114, USPQ 161.

Art Unit: 1623

In claim 20, applicant claims a support material consisting essentially of a cross-linked polymer compound in a three-dimensional network, comprising a radical of general formula (I) or (II):



where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a single bond, -NH-CO-group, -NH-CS group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-thioether radical, of general formula (IIIa), below:

$-S-W_1-W_2-W_3-S-$  (IIIa) ..... Patel et al. disclose applicant's cross-linked cellulose polymer compound or composition comprising a radical of general formula (II) (see abstract). Patel et al.'s radical is the same as applicant's radical of general formula (II) wherein X represents NH, m is an integer = 1, L represents a bis-thioether radical, of general formula (IIIa) wherein  $W_1$  and  $W_3$  each represent an alkylene radical,  $W_2$  represents a single bond, Y represents -CO- and A represents a single bond (see abstract). It should be noted that Patel et al.'s compound or composition is the same as applicant's and should inherently have the same properties or effect of being a support material. Also, it should be noted that it is well settled that "intended use" of a composition or product, e.g., support material, does not further limit claims

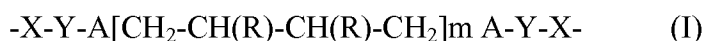
Art Unit: 1623

drawn to a composition or product. See, e.g., *Ex parte Marsham*, 2 USPQ2d 1647 (1987) and *In re Hack* 114, USPQ 161.

Claims 19, 22 are rejected under 35 U.S.C. 102(b) as anticipated by Andreev et al. (Vysokomolekulyarnye Soedineniya, Seriya B: Kratkie Soobshcheniya (1977), 19 (4), 273-6).

Claim 19 is drawn to a support material according to claim 2, wherein L corresponds to formula (IV). Andreev et al. disclose applicant's cross-linked polymer compound or composition comprising a radical of general formula (II) (see abstract). Patel et al.'s radical is the same as applicant's radical of general formula (II) wherein X represents an oxygen atom, m is an integer = 1, Y represents -CO- and A represents a single bond, L represents a bis-silane radical, of general formula (IV) wherein R<sup>5</sup> is an alkyl (i.e., a methyl), R<sub>4</sub> represents the given radical wherein R<sub>6</sub> is oxygen and n1 is 0 (i.e., R<sub>4</sub> = oxygen) (see abstract). Andreev et al.'s compound or composition is Diallyl 4, 4, 6, 6- tetramethyl-4, 6-disila-5-oxanonane-1,9-dioate-heptyl methacrylate copolymer (Cas# 63119-80-2) (see abstract). It should be noted that Andreev et al.'s compound or composition is the same as applicant's and should inherently have the same properties or effect of being a support material. Also, it should be noted that it is well settled that "intended use" of a composition or product, e.g., support material, does not further limit claims drawn to a composition or product. See, e.g., *Ex parte Marsham*, 2 USPQ2d 1647 (1987) and *In re Hack* 114, USPQ 161.

In claim 22, applicant claims a support material consisting essentially of a cross-linked polymer compound in a three-dimensional network, comprising a radical of general formula (I) or (II):





Art Unit: 1623



where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a single bond, -NH-CO-group, -NH-CS group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-silane radical of general formula (IV), ..... Andreev et al. disclose applicant's cross-linked polymer compound or composition comprising a radical of general formula (II) (see abstract).

Patel et al.'s radical is the same as applicant's radical of general formula (II) wherein X represents an oxygen atom, m is an integer = 1, Y represents -CO- and A represents a single bond, L represents a bis-silane radical, of general formula (IV) wherein R<sup>5</sup> is an alkyl (i.e., a methyl), R<sub>4</sub> represents the given radical wherein R<sub>6</sub> is oxygen and n<sub>1</sub> is 0 (i.e., R<sub>4</sub> = oxygen) (see abstract). Andreev et al.'s compound or composition is Diallyl 4, 4, 6, 6- tetramethyl-4, 6-disila-5-oxanonane-1,9-dioate-heptyl methacrylate copolymer (Cas# 63119-80-2) (see abstract). It should be noted that Andreev et al.'s compound or composition is the same as applicant's and should inherently have the same properties or effect of being a support material. Also, it should be noted that it is well settled that "intended use" of a composition or product, e.g., support material, does not further limit claims drawn to a composition or product. See, e.g., *Ex parte Marsham*, 2 USPQ2d 1647 (1987) and *In re Hack* 114, USPQ 161.

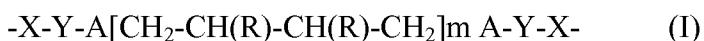
***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al. (Melliand Textilberichte (1923-1969) (1968), 49 (1), 85-91) in combination with Francotte (WO 97/49733).

In claim 2, applicant claims a support material consisting essentially of a cross-linked polymer compound in a three-dimensional network, comprising a radical of general formula (I) or (II):



where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a -NH-CO-group, -NH-CS group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-thioether radical, of general formula (IIIa), bis-sulphoxide radical of general formula (IIIb), or bis-sulphone radical, of general formula (IIIc), or a bis-silane radical of general formula (IV), below: -S-W<sub>1</sub>-W<sub>2</sub>-W<sub>3</sub>-S- (IIIa) .....

Art Unit: 1623

Claims 3-5 are drawn to said support material wherein the support material is of specific form or shape, specific % or wherein the support material obtained from specific source.

Patel et al. disclose applicant's cross-linked cellulose polymer compound or composition comprising a radical of general formula (II) (see abstract). Patel et al.'s radical is the same as applicant's radical of general formula (II) wherein X represents NH, m is an integer = 1, L represents a bis-thioether radical, of general formula (IIIa) wherein W<sub>1</sub> and W<sub>3</sub> each represent an alkylene radical, W<sub>2</sub> represents a single bond, Y represents –CO– and A represents a single bond (see abstract). It should be noted that Patel et al.'s compound or composition is the same as applicant's and should inherently have the same properties or effect of being a support material. Also, it should be noted that it is well settled that "intended use" of a composition or product, e.g., support material, does not further limit claims drawn to a composition or product. See, e.g., *Ex parte Marsham*, 2 USPQ2d 1647 (1987) and *In re Hack* 114, USPQ 161.

The difference between applicant's claimed composition and the composition disclosed by Patel et al. is the form of the composition or material.

Francotte discloses that crosslinked polysaccharides (polymers) derivatives can be used as support materials for chromatographic separation of enantiomers (see abstract) and that in conditioned form, they can be used as pure polymers for chromatographic separation of enantiomers (see abstract).

It would have been obvious to one having ordinary skill in the art, at the time the claimed invention was made, in view of Giuliana et al. and Francotte, to have prepared Patel et al.'s

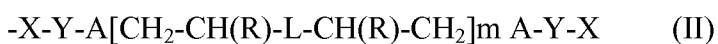
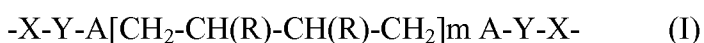
Art Unit: 1623

cross-linked cellulose polymer compound or composition in different forms and percentage in order to use it as support materials for chromatographic separation of enantiomers.

One having ordinary skill in the art would have been motivated, in view of Giuliana et al. and Francotte, to prepare Patel et al.'s cross-linked cellulose polymer compound or composition in different forms and percentage in order to use it as support materials for chromatographic separation of enantiomers. It should be noted that the use of support material in specific form or shape, specific % or specific source (as recited in claims 3-5) depends on the factors such as the type of chromatography separation technique used.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gale et al. (US 3,720,500) in combination with Francotte (WO 97/49733).

In claim 21, applicant claims a support material consisting essentially of a cross-linked polymer compound in a three-dimensional network, comprising a radical of general formula (I) or (II):



where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a single bond, -NH-CO-group, -NH-CS group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms

Art Unit: 1623

or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-sulphoxide radical, of general formula (IIIb), .....

Gale et al. teach cross-linked cellulosic fiber polymer compound comprising a radical of general formula (II), comprising bis-sulphoxide radical and a process for preparing them (see abstract; see col. 6, lines 29-36, claims and entire patent). Gale et al. 's radical is the same as applicant's radical of general formula (II) wherein X represents an oxygen atom, m is an integer = 1, L represents a bis-sulphoxide radical, of general formula (IIIb) wherein  $W_1$  and  $W_3$  each represent an alkylene radical,  $W_2$  represents a single bond, Y represents a single bond and A represents a single bond (see abstract; see col. 6, lines 29-36, claims and entire patent).

Gale et al. does not expressly recite a specific compound, but suggests a compound that reads on the claimed invention.

Francotte discloses that crosslinked polysaccharides (polymers) derivatives can be used as support materials for chromatographic separation of enantiomers (see abstract) and that in conditioned form, they can be used as pure polymers the for chromatographic separation of enantiomers (see abstract).

It would have been obvious to one having ordinary skill in the art, at the time the claimed invention was made, in view of Giuliana et al. and Francotte, to have prepared any compound suggested by Giuliana et al., in order to use them as support materials for chromatographic separation of enantiomers.

One having ordinary skill in the art would have been motivated, in view of Giuliana et al. and Francotte, to prepare any compound suggested by Giuliana et al., in order to use them as support

Art Unit: 1623

materials for chromatographic separation of enantiomers. Claims 17 and 18 are objected to as being dependent upon a rejected base claim.

***Response to Arguments***

Applicant's arguments with respect to claims 2-5, 13, 15-22 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Henry whose telephone number is 571-272-0652. The examiner can normally be reached on 8.30am-5pm; Mon-Fri. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia A. Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael C. Henry  
September 29, 2008.

/Shaojia Anna Jiang, Ph.D./  
Supervisory Patent Examiner  
Art Unit 1623